

REMARKS

Claims

Independent claim 1 has been amended to more clearly define the invention. The features defined by claims 2-4, 11-16 and 18 have been incorporated into claim 1. Support for the amendment to claim 1 can be found, for example, in Figures 3-5, 35 and 38 of the original application and the corresponding description.

Claim 2 has been amended to more clearly define the invention. Support for the amendment to claim 2 can be found, for example, on page 44, the second and third paragraphs.

Claim 5 has been amended to incorporate the features defined by claim 6.

Claim 7 has been amended to recite “object” and “socket connection”. Support for “object” and “socket connection” can be found, for example, on page 12, the third paragraph. “stream (streamed)” is reasonably inferred from the application as originally filed and can be read from the original application by a person skilled in the art.

Claim 19 has been amended to depend on claim 10.

Claims 6, 8-9 and 18 have been cancelled without prejudice.

Independent claim 23 has been amended to more clearly define the invention and to add changes corresponding to those of claims 1 and 7. The amendment to claim 23 is fully supported by the application as originally filed. In particular, support for “ensuring that the data is updated in the database server and in local caches as processing time permits for enhanced reliability” can be found, for example, on page 16, the second paragraph and page 48, the second paragraph, and support for “transmitting, by an active push mode, the updated data or the subset of the updated data only to the client which is a subscriber and is interested in that data” can be found, for example, on page 23, the second and third paragraphs and on page 12.

Claim 24 has been deleted without prejudice.

Claim 25 has been amended to depend on claim 23.

New claim 38 has been added. Support for new claim 38 can be found, for example, on page 54, lines 1-10, page 58, lines 6-10 and in Figures 37 and 38.

The amendments to the claims are fully supported by the application as originally filed. No new matter has been introduced by way of the amendment.

Claim Rejection-35 USC §102

Under Paragraph 4 of the Office Action, the Examiner rejected claims 1, 4-9, 23-26 and 28-30 under 35 U.S.C. 102(b) as being anticipated by Glass et al. (U.S. Patent No. 6,161,097), hereinafter referred to as Glass (I).

Independent claims 1 and 23 have been amended to more clearly define the invention.

Glass (I) discloses, on col. 5, lines 18-35 and in Figure 1, a relational database on a central server with a plurality of interfaces with varying degrees of functionality on each. The system of Glass (I) is a client server two-tier architecture in which the database itself acts as a central arbiter of transactions. This type of transaction procession is literally described on col. 5, lines 25-28 of Glass (I), stating: "The TMS is data driven; database table access or value changes trigger messages or data updates to various subsystems."

By contrast, according to the present invention, the system of claims 1 and 23 has a three-tier architecture to improve transaction performance, reliability, and reduce the amount of data sent over the network. Claims 1 and 23 recite a database manager placed at the middle tier of the three-tier architecture and a database server forming one tier of the three-tier architecture, where the database server is not the controller of all transactions by virtue of being in the middle tier. The database manager is a customized executable entity and has a plurality of common interfaces to the clients and one interface to the database server. In addition, the data manager keeps an active dynamic record of which data clients are attached and which data each client is interested in. Glass (I) neither discloses nor suggests such features.

Dependent claims further define additional features.

For example, claim 5 defines commutation infrastructure where the clients subscribe to certain data items using secure mechanism. The subsets of data are actively pushed to the clients in a

reliable manner according to a subscription list. Glass (I) neither discloses nor suggests the communication infrastructure defined by claim 5 in combination with the system defined by claim 1.

Claim 7 defines “object” and “socket connection”. According to claim 7, the data manager maintains lists of data including which clients are connected, what data the client needs to know about, and other system attributes which are streamed over a (TCP) socket rather than broadcast, in the form of an object rather than a message or mere payload, and uses a socket connection to push data rather than in a passive listening mode. It is noted that claim 23 also defines a streamed object to maintain, pass and receive lists of data. Glass (I) refers only generally to a system that displays flight data on LCD monitors and sends flight data over a socket connection. Glass (I) neither discloses nor suggests the above features in claim 7.

Applicant respectfully requests the reconsideration and withdrawal of the rejections.

Claim Rejection-35 U.S.C. §103

Under Paragraph 6 of the Office Action, the Examiner rejected dependent claims 3-4 under 35 U.S.C. 103(a) as being unpatentable over by Glass (I) in view of Glass et al. (U.S. Patent No. 6,278,965), hereinafter referred to as Glass (II).

Applicant has assumed that the Examiner rejected claims 2-3 rather than claims 3-4.

The Examiner acknowledged that Glass (I) fails to discuss providing an alternate data manager, but stated that Glass (II) discloses an emergency alternative backup system.

Applicant respectfully disagrees with the Examiner. Glass (II) states, on col. 7, line 63-col. 8, line 4: “Emergency Alternative Backup System. ... While this information may not be as exact as the core-system data ..., it can provide data which enables ground controllers to make reasoned decisions in such emergency circumstances.” Thus, the Emergency Alternative Backup System of Glass (II) is a mere emergency storage of data.

By contrast, according to claim 2, an alternate data manager is capable of coupling to the primary data manager via one of the plurality of second interfaces where the alternate data manager automatically and seamlessly takes over the operation of the primary data manager and becomes

the primary data manager. The alternate data manager uses the interface common to the clients while waiting for primary data manager failure and anticipating the failure, and takes over the operation of the primary data manager with a full set of operational data in a seamless and fault tolerant manner for both redundancy and maintenance purpose.

Glass (II) merely anticipates emergency alternative to seemingly store data, because they talk about the information not being as exact as the core system data. In addition, they talk about their system being used in the case of emergency in Glass (II) whereas the alternate data manager is used in multiple circumstances where hardware or software maintenance is being performed on the primary data manager.

Claims 2-3 depend on claim 1. As described above, Glass (I) fails to suggest or teach the subject matter defined by claim 1. Glass (II) does not any teaching to Glass(I) to render claims 2-3 unpatentable. Hence it is respectfully submitted that claims 2-3 are patentable in view of the cited references.

Under Paragraph 7 of the Office Action, the Examiner rejected dependent claims 10, 14-16, 27 and 31-37 under 35 U.S.C. 103(a) as being unpatentable over by Glass (I) in view of Mukhopadhyay et al. (U.S. Patent No. 6,032,158), hereinafter referred to as Mukhopadhyay.

Claims 10 and 14-16 depend on claim 1. Claims 27 and 31-37 depend on claim 23. Glass (I) fails to suggest the subject matter defined by claims 1 and 23. Mukhopadhyay does not any teaching to Glass(I) to render claims 10, 14-16, 27 and 31-37 unpatentable.

Under Paragraph 8 of the Office Action, the Examiner rejected dependent claim 17 under 35 U.S.C. 103(a) as being unpatentable over by Glass (I) in view of Raz (U.S. Patent No. 6,292,827).

Claim 17 depends on claim 1. Glass (I) fails to suggest the subject matter defined by claim 1. Raz does not any teaching to Glass(I) to render claim 17 unpatentable.

Under Paragraph 9 of the Office Action, the Examiner rejected dependent claim 18 under 35 U.S.C. 103(a) as being unpatentable over by Glass (I) in view of Bowman-Amuah (U.S. Patent No. 6,615,253).

The Examiner stated: "Bowman-Amuah discusses using a gateway database server in order to

provide a mechanism for clients to transparently access data in a variety of database. (Column 52, lines 14-29)".

Claim 1 has been amended to recite a gateway server, and claim 18 has been cancelled without prejudice.

It is respectfully submitted that the gateway server of the present invention is not used merely to connect to a variety of different databases, but for a distinct application. According to the present application, the gateway server is used to move data (e.g. air traffic control data) from a secure domain (e.g. an operational safely-critical secure database server in a secure closed domain) to a less secure domain (e.g. business domain) in a non-intrusive manner through a firewall (e.g., Figures 3, 35 and 38 and corresponding description of the present application). The cited references fail to disclose or suggest the gateway server as recited in claim 1.

Applicant respectfully requests the reconsideration and withdrawal of the obviousness rejections.

In view of the above amendments and remarks and having dealt with all the objections raised by the Examiner, reconsideration and allowance of the application is courteously requested.

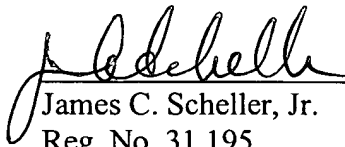
Extension of Time

Applicant hereby requests an extension of time to respond to the pending Office Action, and a check for the necessary extension fee is enclosed. Please charge any shortages or credit any overages to Deposit Account No. 02-2666.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN

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James C. Scheller, Jr.
Reg. No. 31,195

12400 Wilshire Boulevard
Seventh Floor
Los Angeles, California 90025-1026
(408) 720-8300